IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A method, comprising overlapping a plurality of direct-sequence spread-spectrum signals using carrier frequencies that are i) each precisely an integer multiple of a bit rate and ii) orthogonally spaced relative to an integral multiple of the bit rate rather than a chip rate,

wherein the chip rate is an integer multiple of the bit rate and is greater than or equal to two and

wherein two of the of plurality of direct-sequence spread-spectrum signals, independent of their relative starting phases, will integrate to zero and an integration time to define orthogonally is 1/Tb, where 1/Tb is a data rate.

2. (Original) A method of claim 1, further comprising common frequency-hopping encoding said plurality of direct-sequence spread-spectrum signals.

3. (Original) The method of claim 1, further comprising individual, differential frequency-hopping encoding each of said plurality of direct-sequence spread-spectrum signals.

4. (Previously Presented) The method of claim 1, wherein frequency-hopping modulation is performed in a continuous-phase manner.

5. (Original) The method of claim 1, further comprising time-hopping encoding said plurality of direct-sequence spread-spectrum signals.

6. (Original) The method of claim 5, further comprising frequency-hopping encoding said plurality of direct-sequence spread-spectrum signals.

7. (Original) The method of claim 1, wherein overlapping includes synchronously allocating each of a plurality of users to one of a plurality of orthogonal channels.

8. (Previously presented) The method of claim 1, wherein overlapping includes encoding a frequency shift in a subset of bits that define a code word.

9. (Currently amended) The method of claim 1, wherein overlapping includes establishing a bit- clock synchronization; and

further comprising multiplying an incoming signal by an estimate of a desired signal; and integrating a product over an integral multiple of a bit period rather than a chip <u>period</u> ~~rate~~.

10. (Original) The method of claim 1, further comprising retransmitting one of said plurality of direct-sequence spread-spectrum signals.

11. (Original) The method of claim 1, further comprising checking one of said plurality of direct-sequence spread-spectrum signals with an error-correcting code.

12-14. (Canceled)

15. (Currently amended) A computer program, comprising computer- or machine-readable program elements translatable for implementing a method of signal transmission

including overlapping a plurality of direct-sequence spread-spectrum signals using carrier frequencies that are i) each precisely an integer multiple of a bit rate and ii) orthogonally spaced relative to an integral multiple of the bit rate rather than a chip rate,

wherein the chip rate is an integer multiple of the bit rate and is greater than or equal to two and

wherein two of the of plurality of direct-sequence spread-spectrum signals, independent of their relative starting phases, will integrate to zero and an integration time to define orthogonally is 1/Tb, where 1/Tb is a data rate.

16-24. (Canceled)

25. (Currently amended) A computer program comprising computer program means adapted to perform the steps of overlapping a plurality of direct-sequence spread-spectrum signals using carrier frequencies that are i) each precisely an integer multiple of a bit rate and ii) orthogonally spaced relative to an integral multiple of the bit rate rather than a chip rate,

wherein the chip rate is an integer multiple of the bit rate and is greater than or equal to two and

wherein two of the of plurality of direct-sequence spread-spectrum signals, independent of their relative starting phases, will integrate to zero and an integration time to define orthogonally is 1/Tb, where 1/Tb is a data rate.

26. (Original) A computer program as claimed in claim 25, embodied on a computer-readable medium.

27. (Cancel)

28. (Currently amended) A method, comprising providing a direct-sequence spread-spectrum communication system that increases a number of users by utilizing a plurality of closely spaced orthogonal carriers that are i) each precisely an integer multiple of a bit rate and ii) produce overlapping spectra,

wherein a spacing of the plurality of orthogonal carriers is based on an integral multiple of the bit rate and not a chip rate, ~~and~~

wherein the chip rate is an integer multiple of the bit rate and is greater than or equal to two and

wherein two of the of plurality of direct-sequence spread-spectrum signals, independent of their relative starting phases, will integrate to zero and an integration time to define orthogonally is 1/Tb, where 1/Tb is a data rate.

29. (Original) The method of claim 28, further comprising frequency-hopping encoding the overlapping spectra.

30. (Original) The method of claim 28, further comprising time-hopping encoding the overlapping spectra.

31. (Original) The method of claim 30, further comprising frequency-hopping encoding the overlapping spectra.

32. (Currently amended) A method, comprising overlapping a plurality of synchronous direct-sequence spread-spectrum signals using carrier frequencies with zero relative phase differences that are i) each precisely an integral multiple of 1/2 a bit rate and ii)

orthogonally spaced relative to an integral multiple of ~~at least one~~ ½ the bit rate rather than a chip rate,

wherein the chip rate is an integral multiple of the bit rate and is greater than or equal to two and

wherein two of the of plurality of direct-sequence spread-spectrum signals, independent of their relative starting phases, will integrate to zero and an integration time to define orthogonally is 1/Tb, where 1/Tb is a data rate.

33. (Previously Presented) The method of claim 32, further comprising common frequency-hopping encoding said plurality of direct-sequence spread-spectrum signals.

34. (Currently amended) A method, comprising overlapping a plurality of synchronous direct-sequence spread-spectrum signals using carrier frequencies with relative phase differences that are i) each precisely an integral multiple of $1/2^x$ a bit rate, where x is a counting number and ii) orthogonally spaced relative to ~~one-half~~ the integral multiple of $1/2^x$ of ~~a~~ the bit rate rather than a chip rate,

wherein the chip rate is an integral multiple of the bit rate and is greater than or equal to two and

wherein two of the of plurality of direct-sequence spread-spectrum signals, independent of their relative starting phases, will integrate to zero and an integration time to define orthogonally is 1/Tb, where 1/Tb is a data rate.

35. (Previously Presented) The method of claim 32, further comprising time-hopping encoding said plurality of direct-sequence spread-spectrum signals.

36. (Previously Presented) The method of claim 34 further comprising common frequency-hopping encoding said plurality of direct-sequence spread-spectrum signals.

37. (Previously Presented) The method of claim 34, further comprising time-hopping encoding said plurality of direct-sequence spread-spectrum signals.

38. (New) The method of claim 1, wherein integration to zero is characterized by

$$\int_{t}^{t+T_x} \cos(\omega_1(\mathrm{t})) * \mathrm{PN}_1(\mathrm{t}) * \mathrm{m}_1(\mathrm{t}) * \cos(\omega_2(\mathrm{t})) * \mathrm{PN}_2(\mathrm{t}) * \mathrm{m}_2(\mathrm{t})\mathrm{dt} = 0$$

where ω_1 is a first carrier frequency, ω_2 is a second carrier frequency, PN_1 is a first spreading code, PN_2 is a second spreading code, m_1 is a first digital message signal, m_2 is a second digital message signal, t is time and T_x is set equal to T_b or integral multiples of T_b, where $1/\mathrm{T}_\mathrm{b}$ is a data rate.

39. (New) The computer program of claim 15, wherein integration to zero is characterized by

$$\int_{t}^{t+T_x} \cos(\omega_1(\mathrm{t})) * \mathrm{PN}_1(\mathrm{t}) * \mathrm{m}_1(\mathrm{t}) * \cos(\omega_2(\mathrm{t})) * \mathrm{PN}_2(\mathrm{t}) * \mathrm{m}_2(\mathrm{t})\mathrm{dt} = 0$$

where ω_1 is a first carrier frequency, ω_2 is a second carrier frequency, PN_1 is a first spreading code, PN_2 is a second spreading code, m_1 is a first digital message signal, m_2 is a second digital message signal, t is time and T_x is set equal to T_b or integral multiples of T_b, where $1/\mathrm{T}_\mathrm{b}$ is a data rate.

40. (New) The computer program of claim 25, wherein integration to zero is characterized by

$$\int_{t}^{t+T_x} \cos(\omega_1(\mathrm{t})) * \mathrm{PN}_1(\mathrm{t}) * \mathrm{m}_1(\mathrm{t}) * \cos(\omega_2(\mathrm{t})) * \mathrm{PN}_2(\mathrm{t}) * \mathrm{m}_2(\mathrm{t})\mathrm{dt} = 0$$

where ω_1 is a first carrier frequency, ω_2 is a second carrier frequency, PN_1 is a first spreading code, PN_2 is a second spreading code, m_1 is a first digital message signal, m_2 is a second digital message signal, t is time and T_x is set equal to T_b or integral multiples of T_b, where $1/T_b$ is a data rate.

41. (New) The method of claim 28, wherein integration to zero is characterized by

$$\int_t^{t+T_x} \cos(\omega_1(t)) * PN_1(t) * m_1(t) * \cos(\omega_2(t)) * PN_2(t) * m_2(t)dt = 0$$

where ω_1 is a first carrier frequency, ω_2 is a second carrier frequency, PN_1 is a first spreading code, PN_2 is a second spreading code, m_1 is a first digital message signal, m_2 is a second digital message signal, t is time and T_x is set equal to T_b or integral multiples of T_b, where $1/T_b$ is a data rate.

42. (New) The method of claim 32, wherein integration to zero is characterized by

$$\int_t^{t+T_x} \cos(\omega_1(t)) * PN_1(t) * m_1(t) * \cos(\omega_2(t)) * PN_2(t) * m_2(t)dt = 0$$

where ω_1 is a first carrier frequency, ω_2 is a second carrier frequency, PN_1 is a first spreading code, PN_2 is a second spreading code, m_1 is a first digital message signal, m_2 is a second digital message signal, t is time and T_x is set equal to T_b or integral multiples of T_b, where $1/T_b$ is a data rate.

43. (New) The method of claim 34, wherein integration to zero is characterized by

$$\int_t^{t+T_x} \cos(\omega_1(t)) * PN_1(t) * m_1(t) * \cos(\omega_2(t)) * PN_2(t) * m_2(t)dt = 0$$

where ω_1 is a first carrier frequency, ω_2 is a second carrier frequency, PN_1 is a first spreading code, PN_2 is a second spreading code, m_1 is a first digital message signal, m_2 is a second digital

message signal, t is time and T_x is set equal to T_b or integral multiples of T_b, where $1/T_b$ is a data rate.

44. (New) The method of claim 1, further comprising cycling through a set of frequencies in a manner known to a receiver.

45. (New) The computer program of claim 15, further comprising cycling through a set of frequencies in a manner known to a receiver.

46. (New) The computer program of claim 25, further comprising cycling through a set of frequencies in a manner known to a receiver.

47. (New) The method of claim 28, further comprising cycling through a set of frequencies in a manner known to a receiver.

48. (New) The method of claim 32, further comprising cycling through a set of frequencies in a manner known to a receiver.

49. (New) The method of claim 34, further comprising cycling through a set of frequencies in a manner known to a receiver.